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SPECIFICATIONS FOR AIRPLANE OBSERVATION FLIGHTS

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U.S. Department of Agriculture

For making one airplane observation flight daily, Sundays and holidays included, for the Weather Bureau during the fiscal year July 1, 1934 to June 30, 1935, inclusive, in accordance with the following schedule and conditions:

For a daily flight started at 5:00 a.m. (75th Meridian Time) to 17,000 feet above sea-level. (By "starting" a flight is meant the actual take-off of the airplane. The word "ground" refers to the field at which the flights are to be started.)

- A. Cost per flight based on using 1-way radio (receiving only). See V EQUIPMENT AND PERSONNEL (b) (2), of these specifications.....
- B. (Alternate) Cost per flight based on using 2-way radio (voice). See VIII GENERAL (g) of these specifications

I SCHEDULE OF FLIGHTS-

- (a) Although flights must be started as a rule at the time specified, latitude in starting them earlier or later will be allowed under conditions set forth hereinafter.
- (b) Flights must be started not later than 5:30 a.m. (75th Meridian Time) nor earlier than 4:30 a.m. (75th Meridian Time) unless weather conditions are unfavorable as specified under II WEATHER CONDITIONS, of these specifications.
- (c) If unfavorable weather conditions, as specified under II WEATHER CONDITIONS of these specifications make it inadvisable to start any flight at the scheduled time, it shall be started not later than 90 minutes after conditions become favorable, except that no flight will be started after 8:00 p.m. (75th Meridian Time) on any day.

II WEATHER CONDITIONS-

- (a) Weather conditions will be considered favorable for the making of flights when the ceiling at the airport from which the flights are regularly made is reported by the Weather Bureau as being over feet and the visibility as more than miles, unless (1) the official forecast, which will be issued by the Weather Bureau Airport Station, as a trip forecast for every flight, indicates a lowering of the ceiling to feet or a decrease of visibility to miles, or a probability of dangerous ice formation on the airplane within three hours; or (2) when it would be necessary to fly into cumulo-nimbus clouds; or (3) when for any other reason the Weather Bureau observer considers the weather or other conditions too dangerous for flying.

III DEFINITION OF FLIGHT-

- (a) A flight will consist of making an airplane ascent (the airplane to be instrumentally equipped as hereinafter set forth), at a rate of ascent not greater than 1,500 feet per any five minute period. (Intervals during which airplane is leveling off, as indicated in following paragraph (b), to be excluded from above computations).
- (b) The airplane must level off during the ascent for at least one minute at the 1500 foot (above ground) level and at 3000 foot intervals thereafter up to and including the maximum elevations reached.
- (c) After reaching the maximum height the airplane will return to the ground as rapidly as practicable.
- (d) The place of landing must be at the place of take-off unless weather conditions (as indicated in II WEATHER CONDITIONS, of these specifications), make this impracticable.
- (e) The entire flight must be made, as nearly as practicable, directly over the Airport from which the take-off is regularly made.
- (f) No ascent of less than 4500 feet above sea-level shall be deemed to constitute a flight within the meaning of these specifications.
- (g) The maximum height of each flight will be computed and determined from the meteorograph record by standard Weather Bureau methods. In the event of failure of the meteorograph to record, payment will be made on the basis of the altimeter readings as provided for under IV (f) of these specifications. Such altimeter readings will be corrected, if necessary, by the Weather Bureau, in accordance with the previous general agreement found between altimeter indications and the height as computed by standard Weather Bureau methods.

IV WRITTEN REPORT OF FLIGHT-

The contractor's pilot shall submit, within 30 minutes after landing, to the local representative of the Weather Bureau a written and signed statement containing the following information at the termination of each flight so far as it is practicable to determine.

- (a) Time and height above ground as indicated by altimeter when entering and leaving clouds, fog, smoke, and haze layers; also whether the bases, tops or sides of clouds are referred to; time of reaching maximum height.

- (b) Times reached and heights above ground as indicated by altimeter of strata (base and top) where precipitation was encountered during flight; state kind of precipitation.
- (c) Time of occurrence of excessive turbulence, isolated violent bumps, ice formation on airplane, thunder and nearby discharges of lightning.
- (d) Cloud types and amounts, visible above lower cloud layers.
- (e) Whenever clouds are not entered but their distance from the airplane is relatively close, their estimated heights above ground as indicated by the altimeter should be given. Such heights should always be indicated as estimated.
- (f) Maximum height above ground as indicated by altimeter; and time at which descent is begun.
- (g) The pilot will press a button or other similar arrangement for closing an electric circuit for marking the record sheet at the moment of take-off; also whenever conditions in (a), (b), (c) and (f) occur. In the last case, (f), the contact will be made at the moment descent is begun.

V EQUIPMENT-AND-PERSONNEL-

- (a) To be furnished by the Weather Bureau.
 - (1) The Weather Bureau will furnish an aero-meteorograph (weight approximately seven lbs.)
 - (2) A representative of the Weather Bureau will mount this instrument on the airplane before each flight is begun and remove it from the airplane when the flight is terminated.
- (b) To be furnished by the contractor.
 - (1) The contractor shall furnish the necessary airplane, licensed pilot, material and equipment customary for airplane navigation; also a suitable mounting apparatus for carrying the above mentioned Weather Bureau instrument on the airplane, including wiring, battery and connectors for the 6-volt circuit for operating the electric-time-recording pen. The position and method of mounting this instrument must be approved by the Weather Bureau representative.
 - (2) At places where Government radio-broadcast or radio-range stations are in operation the contractor must furnish and equip the airplane making these flights with a suitable (1-way) radio receiving apparatus, the

chief purpose of which is to provide a means of informing the pilot of weather conditions and to enable him to keep the airplane over the Airport when the ground is not visible from aloft.

VI PAYMENT-

- (a) Payment will be made as soon after the end of each month as it is possible to audit the vouchers at the U. S. Department of Agriculture, Washington, D. C.
- (b) No additional payment will be made for flights reaching higher than 17,000 feet above sea-level but for flights reaching less than 17,000 feet above sea-level a deduction from the bid price for a flight of 17,000 feet above sea-level will be made in accordance with the following scale, in which all heights are above sea-level:
 - 15,000 to 16,999 feet incl., a deduction of ten per cent of the bid price for a flight to 17,000 feet.
 - 13,500 to 14,999 feet incl., a deduction of twenty per cent of the bid price for a flight to 17,000 feet.
 - 12,000 to 13,499 feet incl., a deduction of thirty per cent of the bid price for a flight to 17,000 feet.
 - 10,500 to 11,999 feet incl., a deduction of forty per cent of the bid price for a flight to 17,000 feet.
 - 9,000 to 10,499 feet incl., a deduction of fifty per cent of the bid price for a flight to 17,000 feet.
 - 7,500 to 8,999 feet incl., a deduction of sixty per cent of the bid price for a flight to 17,000 feet.
 - 6,000 to 7,499 feet incl., a deduction of seventy per cent of the bid price for a flight to 17,000 feet.
 - 4,500 to 5,999 feet incl., a deduction of eighty per cent of the bid price for a flight to 17,000 feet.
 - Less than 4,500 feet, no payment will be made for the flight.
- (c) While the contractor shall have the right of decision as to whether or not a flight shall be made:
 - (1) there shall be deducted from amounts otherwise due him liquidated damages at the rate of 100% of the contract price of one daily flight to 17,000 feet above sea-level, in accordance with these specifications, for each day's failure to make such flight, when the failure is due to other than unfavorable weather conditions as specified under II WEATHER CONDITIONS, of these specifications;
 - (2) there shall be deducted from amounts otherwise due him liquidated damages at the rate of 25% of the contract price of one daily flight to 17,000 feet

above sea-level, in accordance with these specifications, when the flight is started before 4:30 a.m. or after 5:30 a.m. (75th Meridian Time) unless weather conditions are unfavorable as specified under II WEATHER CONDITIONS, of these specifications; there shall be deducted from amounts otherwise due him liquidated damages at the rate of 50% of the contract price of one daily flight to 17,000 feet above sea-level, in accordance with these specifications, when the flight is started after 8:30 a.m. (75th Meridian Time) unless weather conditions are unfavorable as specified under II WEATHER CONDITIONS, of these specifications;

- (3) there shall be deducted from amounts otherwise due him liquidated damages at the rate of 25% of the contract price of one daily flight to 17,000 feet above sea-level in accordance with these specifications, whenever a delay of more than 90 minutes occurs before the flight is started after weather conditions change from unfavorable to favorable as specified under II WEATHER CONDITIONS of these specifications; there shall be deducted from amounts otherwise due him liquidated damages at the rate of 50% of the contract price of one daily flight to 17,000 feet above sea-level, in accordance with these specifications, whenever a delay of more than 3 hours occurs before the flight is started after weather conditions change from unfavorable to favorable as specified under II WEATHER CONDITIONS of these specifications.

Weather conditions are unfavorable as indicated under II WEATHER CONDITIONS, of these specifications.

VII CONTRACT-

Each bidder must furnish a guarantee bond or certified check drawn in favor of Disbursing Clerk, U. S. Department of Agriculture, as security in the amount of \$300.00 guaranteeing that he will not withdraw his bid within 30 days after the opening of same and that he will, if awarded the contract, execute formal contract and bond, such bond to be in the amount of \$3000.00.

VIII GENERAL-

- (a) The pilots making these flights must hold a transport pilot's license and have had at least 50 hours of night flying, and at least 10 hours of instrument flying; the airplanes used must have been duly inspected and approved by the U. S. Department of Commerce.

- (b) The contractor will not be required to carry a Weather Bureau representative in the airplane making these flights.
- (c) The contractor shall, without additional expense to the Weather Bureau, obtain all required licenses and permits and the Government shall not be responsible for any damages to persons and property that occur as a result of his fault or negligence in connection with the prosecution of the work.
- (d) The contractor shall be required to taxi the airplane to within 300 feet of the Weather Bureau Airport Station before and after the flight for the purpose of having the instrument mounted and removed from the airplane, except when, owing to forced landing elsewhere, or to conditions on the airport, this requirement is waived on any particular flight by authority of the Weather Bureau Official. (See (V) EQUIPMENT, (a), (2) of these specifications.)
- (e) The flights shall be made at the
.....Airport.
City State
(Above to be filled in by bidder)
- (f) If the contractor fails to attain a height of 17,000 feet above sea-level on more than three days during any 30 consecutive days, except when in the judgment of the Weather Bureau Official weather conditions make this impracticable, or for any other reason fails to perform satisfactorily the airplane service required herein, the Weather Bureau may procure such service in the open market and the contractor and his sureties will be held liable to the Government for any excess cost over the contract rate occasioned the Government thereby.
- (g) A separate bid will be made, whereby the contractor will be required to furnish and equip the airplane making these flights with a suitable radio apparatus for (2-way) receiving and transmitting by voice. (See Alternate B).
- (h) The Weather Bureau reserves the right to reject any or all bids; also to accept either of the alternate bids as regards the use of 1-way or 2-way radio equipment.